

REMARKS

The Final Office Action mailed July 9, 2008 has been carefully considered. Reconsideration in view of the following remarks is respectfully requested.

Subject Matter Indicated Allowed

Applicants gratefully acknowledge the indication of allowance of claims 10-11.

Objection to the Drawings under 37 CFR 1.83(a)

The Examiner has objected to Figure 5 on the ground that the figure does not, according to the Examiner, show “single dimensional nano-structures” as referred to in claim 1 and its dependent claims. The Applicants respectfully point out that Figure 5 shows “a lattice of sodium clusters obtained in accordance with the invention of the SiC substrate.” (Specification, para 38.) These clusters can be viewed as “quantum dots” referred to in claim 1. “Single dimensional nano-structures,” however, are depicted in Figure 2 (reference 9), Figure 3 (reference 10 and 12), and Figure 4 (reference 22, 24). See also paragraphs 58 and 74 of the Specification, which refer to “single dimensional . . . strips,” which is one example of a “single dimensional nano-structure.”

Therefore, because every feature of the claims is found in the drawings, including “single dimensional nano-structures,” Applicants respectfully request that the Examiner withdraw the objection to the drawings.

Amendment to Claim 1

Claim 1 has been amended for improved clarity and grammatical accuracy. The amendment does not raise any issues beyond those already considered by the Examiner.

Rejection(s) Under 35 U.S.C. §102

Claims 1-9 stand rejected under 35 U.S.C. §102(c) as allegedly being anticipated by Yu et al. (U.S. Patent Publication 2002/0088970). According to the Examiner, Yu:

discloses nano-objects (312), particularly atomic threads, single dimensional nano-structures and quantum dots, this being characterized in that the nano-objects are made essentially of a metal and are formed on the surface of a substrate (302) made of a monocrystalline semiconducting material.

(Office Action p. 3.) In Yu, however, the quantum dots 312 is not “made of a metal” as required by amended claim 1. The quantum dots of 312 are made of Cu_2O , which is a metal oxide, not a metal—in other words, it contains a metallic element, not as a metal, but rather as a non-metallic oxide. As seen in Fig. 20 of Yu, the dots 312 are formed from an initial layer of copper oxide 310 which grows during processing into a series of quantum dots composed of copper oxide. (*See* Yu, para 89.) No part of the dots 312 of Yu are in a metallic state, and thus, Yu does not disclose quantum dots “made of a metal.”

It will be appreciated that, according to the M.P.E.P., a claim is anticipated under 35 U.S.C. §102 only if each and every claim element is found, either expressly or inherently described, in a single prior art reference.¹ The aforementioned reasons clearly indicate the contrary, and withdrawal of the 35 U.S.C. §102 rejection of claim 1 based on Yu is respectfully urged.

In addition, although the Examiner did not reject claim 1 for obviousness based on 35 U.S.C. §103, it is clear that the present claim 1 is not obvious in view of Yu, given that the Yu process could not lead to quantum dots in metallic form. The self-organizing quantum dots of Yu are the result (according to Yu para. 89) of a mismatch between the copper oxide 310 and the underlying metal oxide layer 308. The present invention, however, does not depend on the crystal geometry of metal oxides and is therefore nonobvious.

Because claims 2-9 depend directly or indirectly on claim 1 and inherit its limitations including the “made of a metal” limitation, Applicants respectfully request that the rejection of claims 2-9 under 35 U.S.C. §102 be withdrawn as well. In addition, Applicants disagree, without limitation, with the Examiner’s statement with respect to claims 7 and 8, that Yu discloses “parallel atomic threads” or “single-dimensional . . . strips,” or that these threads and strips are “metal.” (Office Action p. 4.) Actually, Yu only describes either “three dimensional quantum dots [310]” made of copper oxide or “metal oxide layer 308” (Yu para 89), not metallic one-dimensional structures.

Therefore, Applicants respectfully request the withdrawal of the 35 U.S.C. §102 rejections of claims 1-9 based on Yu is respectfully urged.

Conclusion

In view of the preceding discussion, Applicants respectfully urge that the claims of the present application define patentable subject matter and should be passed to allowance.

If the Examiner believes that a telephone call would help advance prosecution of the present invention, the Examiner is kindly invited to call the undersigned attorney at the number below.

Please charge any additional required fees, including those necessary to obtain extensions of time to render timely the filing of the instant Amendment and/or Reply to Office Action, or credit any overpayment not otherwise credited, to our deposit account No. 50-3557.

Respectfully submitted,
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¹ Manual of Patent Examining Procedure (MPEP) § 2131. See also *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).